

09-01-15

SECTION 12 24 00
WINDOW SHADES

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section includes cloth shades. Provide window shades complete, including brackets, fittings and hardware.

1.2 RELATED WORK:

- A. Color of shade cloth: As selected by Architect from manufacture's full range of standard colors.

1.3 QUALITY ASSURANCE:

- A. Manufacturer's Qualification: Submit evidence that the manufacture has a minimum of three (3) years' experience in providing item of type specified, and that the blinds have performed satisfactorily on similar installations. Submit qualifications.
- B. Submit qualifications for installers who are trained and approved by manufacturer for installation of units provided.
- C. Electrical Requirements:
 - 1. NFPA 70 Article 100.
 - 2. Listed and labeled in accordance with UL 325.
 - 3. Marked for intended use, and tested as a system.
 - 4. Individual testing of components is not acceptable in lieu of system testing.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
 - 1. Shade cloth, each type, 610 mm (24 inch) square, including cord and
- C. Manufacturer's literature and data; showing details of construction and hardware for: Cloth and window shades.
- D. Shop Drawings: Provide fabrication and installation details for cloth shades, including shade cloth materials, their orientation to rollers, and their seam and batten locations.
- E. Fire Testing: Submit report of flame spread and smoke developed during product material tests by independent testing laboratory.
- F. Manufacturer's warranty.

09-01-15

1.5 WARRANTY:

- A. Construction Warranty: Comply with FAR clause 52.246-21, "Warranty of Construction".
- B. Manufacturer Warranty: Manufacturer shall warranty their window shades for a minimum of five (5) years from date of installation and final acceptance by the Government. Submit manufacturer's warranty.

1.6 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):
 - AA-V-00200B.....Venetian Blinds, Shade, Roller, Window, Roller, Slat, Cord, and Accessories
- C. ASTM International (ASTM):
 - A240/A240M-14.....Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - B221-14.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - B221M-13.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric)
 - G21-13.....Determining Resistance of Synthetic Polymeric Materials to Fungi
- D. National Electric Manufacturer's Association (NEMA):
 - ICS 6-93(R2006).....Industrial Control and Systems Closures
- E. National Fire Protection Association (NFPA):
 - 70-14.....National Electrical Code (NEC)
 - 701-15.....Fire Tests for Flame Propagation of Textiles and Films
- F. Underwriters Laboratories Inc. (UL):
 - 325-06(R2013).....Door, Drapery, Gate, Louver, and Window Operators and Systems

PART 2 - PRODUCTS

2.1 CLOTH SHADES:

- A. Light-Filtering Shade Cloth: Woven fabric, stain and fade resistant.
 - 1. Weave: Basketweave .

09-01-15

2. Thickness: .010 IN - .018".
3. Orientation on Shadeband: Up the bolt.
4. Openness Factor: 1 percent.
5. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Submit report for testing of shade cloth materials identical to products provided.
6. Drive-End Location: As indicated on construction documents .
7. Pole: Manufacturer's standard type in length required to make operation convenient from floor level and with hook for engaging pull.

2.6 FASTENINGS:

- A. Zinc-coated or cadmium plated steel or stainless steel fastenings of length and type recommended by manufacturer. Except as otherwise specified, provide fastenings for installation with various structural materials as follows:

Type of Fastening	Structural Material
Wood screw	Wood
Tap screw	Metal
Case-hardened, self-tapping screw in pre-drilled hole	Solid masonry, concrete
Screw or bolt in expansion shields	Solid masonry, concrete
Toggle bolts	Hollow blocks, gypsum wallboard, plaster

2.7 FABRICATION:

- A. Fabricate cloth shades to fit measurements of finished openings obtained at site.
- B. Cloth Shades: Rolling type, constructed of shade cloth mounted on rollers. Provide shade cloth with plain sides, and with hem at bottom to accommodate weight bar.
1. Provide separate shades for each individual sash within opening. Provide shade length that exceeds height of window by 305 mm (12 inches) measured from head to sill, in addition to material required to make-up hem:

09-01-15

- a. Provide rollers with spindles, nylon bearings, tempered steel springs, and other related accessories required for positive action.
 - b. Provide rollers of diameter and wall thicknesses required to accommodate operating mechanisms, weights, and widths of shadebands indicated without deflection.
 - c. Provide rollers with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.
 - d. Secure shade cloth to rollers to prevent wrinkling or folding, and on line parallel to axis of rollers so that shade hangs plumb.
 - e. Secure shade cloth with zinc-coated steel or stainless steel machine screws spaced not over 228 mm (9 inches) on centers.
 - f. Do not attach shade cloth to rollers with tacks.
 - g. Provide hem bar of extruded aluminum for entire width of shade band. Heat seal hem bar on all sides to prevent removal.
 - h. Provide eyelets with clear openings large enough to accommodate cords, without cutting into cloth when set.
 - i. Provide cords of sufficient length to permit shades to be drawn to bottom of opening with ends looped and held with cord rings. Attach cords to hems through metal eyelets in center of slats in bottom hems.
2. Finishes:
- a. At concealed surfaces, apply manufacturer's standard finish.
 - b. At exposed surfaces, provide a baked-on enamel finish.
3. Provide carrier trucks for head and sill rails for each louver blade, with two (2) aluminum or steel ball bearing wheels, mounted on acetal resin axles.
- a. Provide mechanism to hold louvers fixed until reset by control.
 - b. Provide stainless steel, full hard, flexible spacer links to space and stabilize each truck by passing smoothly between stabilizer guides on each truck.
 - c. Do not provide glides or sliders.
 - d. Provide louvers that traverse at any angle without binding.

09-01-15

4. Keep louvers taut between head and sill rails with a minimum of 0.45 Kg (1 pound), to a maximum of 1.13 Kg (2-1/2 pounds) of spring tension.
5. Provide traversing by split draw, accomplished by anodized aluminum, spiral lead screw extending the full length of the channel, actuating a lead nut, and controlled by a nickel plated brass or stainless steel bead chain.
 - a. Arrange blinds to pack when traversed to not more than 11 mm (7/16-inch) per louver plus space for end caps and end spacer tubes.
6. Overlap louvers not less than 10 mm (3/8-inch).
7. Manufacture louvers to operate manually in opposite direction from normal traverse, and fasten end louver by friction spacer or anti-creep pin.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Measure openings before fabrication. Do not scale construction documents.
- B. Cloth Shades: Mount window shades on end of face brackets, set on metal gussets, or casing of windows as required. Provide extension face brackets where necessary at mullions.
 1. Locate rollers in level position as high as practicable at heads of windows.
 2. Install shades to prevent infiltration of light over rollers.
 3. Where extension brackets are necessary for alignment of shades, provide metal lugs, and rigidly anchor lugs and brackets.
 4. Place brackets and rollers so that shades do not interfere with window and screen hardware.
 5. Mount shade to allow clearances for window operation hardware.
 6. Shade installation methods not specifically described, are subject to approval of Contracting Officer Representative (COR).

3.2 ADJUSTING:

- A. Adjust and shades to operate smoothly, free from binding or malfunction throughout entire operational range.

3.3 CLEANING AND PROTECTION:

- A. Clean shade surfaces after installation, according to manufacturer's written instructions.

09-01-15

- B. Provide final protection and maintain conditions that ensure that shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged shades that cannot be repaired, in a manner approved by COR before time of Substantial Completion.

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